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„THE SCHOLAR'S CAT" (THE IMAGE OF THE SCIENTIST'S AND THE ENGINEER'S PERSONALITIES IN THE 2ND HALF OF THE 19TH CENTURY)

Lajos BARTHA

The quotation in the title refers to a poem by the great Hungarian poet of the 19th century, JÁNOS ARANY, who ironically and humorously described an absent-minded and helpless scholar. Starting from this description the author gives an interesting analysis of the image of scientists and scholars as refelected in the Hungarian literature of the epoch cited, stressing the changes that occurred in this image owing to the great progress in science and technology of the times.

BUDAPEST AS THE TREASURY OF THE HISTORY OF CHEMISTRY

Éva VÁMOS

Out of the 2273 monuments erected in Budapest in public places as per 1989, 178 are related to the history of science, technology and medicine. Their great majority were raised to the memory of Hungarian scientists, engineers or physicians. Between 1985 and 1989, out of 232 statues and memorial tablets that came into being, only 4 % were dedicated to representants of the above professions.

Among the personalities thus honoured, a single chemist can be found: both a relief and a statue are dedicated to the memory of JÁNOS IRINYI, inventor of the noiseless match (1836). It can be assumed, however, that the honour is due rather to the participant of the War of Independence (1848/49) than to the scientist.

Most of the statues and memorial tablets dedicated to scientists and engineers can be found on the territories of universities, in buildings or in parks. In the aula of Budapest Technical University the busts of 10 former professors were erected in 1927. Out of them but 3 were those of chemists. In the 1960s two more busts were added to the collection. As there was no more room in the aula, the busts of two chemists, among them that of JÁNOS (JOHN) NEUMANN were erected in the University Garden, and those of another two in the University's Building of Chemistry.

Another important memorial place is the new Block of Chemistry of Eötvös Loránd University of Sciences, where the busts of 7 famous chemists are at display, among them those of the Nobel-prize winners György Békésy and György Hevesy. A number of outstanding professors of the university have memorial tablets there.

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INTELLECTUAL FAMILY TREE – SCHOOLS, TEACHERS AND STUDENTS IN HUNGARIAN PHYSICS
(Exhibition on the Occasion of the Year of Physics)

Gábor SZUNYOGH

The timeliness of the paper an the exhibition are given by the fact that 2005 was declared, by UNESCO, the Year of Physics. In Hungary a number of great university and secondary school teachers educated an even greater number of outstanding physicists in the 19th and 20th centuries. Among the 33 personalities dealt with in the paper LORÁND EÖTVÖS was outstanding both as university professor and as scientist. Besides him there were Nobel-prize winners as PHILIP LENART (Nobel-prize of physics 1905), the first Nobel prize winner of Hungarian origin, GYÖRGY BÉKÉSY (Nobel prize of medicine, 1961), JENŐ (EUGENE) WIGNER. Most of them had been students of the same Budapest secondary school, the renowned Calvinist Comprehensive School. Among the school's teachers and directors there were quite a number of outstanding physicists.

THE "GANZ MUSEUM"

András TARNAI

Collecting and arranging of the material started with the preparations for the 100th anniversary of the factory's coming into being, around the end of WW2. A real impetus was given to the work by the law decree 1954 about the protection of technical relics.The Ganz Club established in 1958 was dealing, among others, with the presentation of the factory's past. In 1968 a total of 203 technical relics was registered. The material collected contained paintings of the factory founder and his wife, statues, casts, medals and plaquettes as well as a number of technical drawings and models of vehicles. Personal reminiscences, old photographs and prospectuses completed the collection. The greatest step forward was done at the end of 1987, when the factory-complex Ganz-MÁVAG was divided into smaller units, the buildings were sold, and the collection was taken over by Ganz Holding. The museum was reopened in new premises, where it receives visitors till to-date.

A PERSON UNDERSTANDING TECHNOLOGY AND SCIENCE – FRIGYES KARINTHY

László FÜSTÖSS

F. Karinthy, a famous Hungarian author summarized the events of his life in the chronological order of the technical wonders he lived to see. Aviation as well as broadcasting remained sources of enthusiasm for him throughout his life. He owed the two last years of his life undoubtedly to medicine. The objectified form of his gratitude, the novel *"Journey around my skull"* is an artistic diary of self-observation. In his works, knowledge of science is a self-evident demand, and pseudo-scientific simplifications melt into thin air in the fire of his sparkling ideas. Hundreds of his papers of a few pages each came into being in that form not only for financial reasons but because his method was similar to that of a researcher, whose

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natural tool is a short communication striving for expressing the essence – equally not out of financial considerations, in the first place.

THE ROLE OF TECHNICAL INNOVATIONS IN HUNGARIAN FOLK-TALES

Zsuzsa BORÓK

The paper gives an analysis of how technical achievements are reflected in Hungarian folk-tales. The tales are, in the first place, meant for adults and are related to work. At the same time they express the wishes both of the audience and of the narrator. Out of several collections of tales the author found 4 in which technical innovations occurred.

Particularly from the 1950 on traditional elements of the tales were mingled with new achievements of technology. E.g., in the cellar of the king's or the giants' castle there is electric light. In some tales the hero asks the king for clubs, which the king orders by phone from the iron works. In some tales telescopes are used. The characters in the tales use paraffin oil and petrol, and – for roof covering – asbestos slates. They go to restaurants, hotels, to the circus, the cinema and the railway station, and make use of factory products and laundry services. They go abroad to specified places as Warsaw or the desert. They travel by car, taxi, boat, train, even by plane. They use fine soap and eau-de-Cologne. They describe surgical operations and blood transfusions. Among the characters of the tales you can find officials of the modern world like policemen, ministers or drivers. At the borders the characters are stopped by immigration officers, and the king has a houskeeper. They read books and newspapers, speak several languages and participate in higher education.

The role of innovations in the tales is: arousing the interest and making the narration more colourful. These aspirations are not new. A new feature is that the narrator feels obliged to justify the miraculous elements occurring in the tales, thus the king's wealth is proven by the fact that in his castle lustres provide for light, and the gipsy hero of the tale must prove his ability by knowing how to fly a plane. All this shows that, in order to survive, tales were able to adapt to the new conditions.

PHANTASTIC SCIENCE: THE PLACE OF SCIENCE FICTION IN THE GALAXY IN SCIENTIFIC POPULARIZATION

Gábor KÉPES

The author gives an analysis of the role of science fiction in the popularization of science in Hungary during communism, and from the beginning of today's democratic regime on. He mentions the Hungarian science fiction authors István Nemere and Péter Kuczka, both outstanding representants of this form of literature, who did much to make it accepted. Science fiction has been spreading fast since its first appearance. While in 1950 only one, in 1955 three such works were published, in the 1970s yearly 20 appeared, on the average. In 1979 a team of 10 persons published the bibliography of science fiction. The journal "Galaktika" also provided for the popularity of this form of literature. In the 1990s a university seminar for the research into science fiction came into being. Science fiction, and especially "hard science fiction", conceived by physicists or engineers, can do much for popularizing technology and physics.

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CHEMICAL ENGINEER TIVADAR HELVEY'S ACTIVITIES IN PUBLIC LIFE

Éva FÁBIÁN

TIVADAR HELVEY (1863-1922) was a chemical engineer and owner of a chemical factory. Besides developing his factory into one of the leading Hungarian industrial companies of the epoch by applying the results of his own research and patents, he assumed a number of tasks in different organisations. Among others, he was a founding member and, for many years member of the board of the Association of Hungarian Manufacturers. He also was a founding member, vice-president, and between 1908-1911 president of the Association of Hungarian Chemical Manufacturers. From 1906 to 1911 he was managing editor of the Association's official bulletin and head of its technical column. He was a member of the Royal Hungarian Society for Natural Sciences, and, from 1910 on, its co-president. He equally was a member of the Hungarian Society of Engineers and Architects, and participated in organizing the First National Congress of Hungarian Chemists that took place in Budapest, in 1910.

APPRECIATION OF KÁLMÁN KANDÓ'S WORK IN ENCYCLOPEDIAS

József HALABUK

KÁLMÁN KANDÓ (Pest, 1869-Budapest, 1931) was a mechanical engineer, an internationally well-known inventor in the field of electric traction, and member of the Hungarian Academy of Sciences. A pertinent entry can be found in about all the Hungarian encyclopedias from the 19th to the 21th centuries. The paper gives a critical review of these entries, pointing out the changes that occurred in the assessment of the individual features of the inventor's life work during the epoch in which the entries were published.

PUBLIC SCIENCE – ALONG A NEW NOTION (17TH CENTURY)

Soma RÉDEY

The paper gives an analysis on the relations of science to the public.The first question to be answered is, what the image of the scientist was in the eyes of the public. For a long time people in connection with science lived apart from the outer world. Social views had a great influence on the direction, the outcome and even the contents of scientific knowledge. This situation was changed by enlightenment. From that time on society could mean a supporting background for science. These changes went hand in hand with the strengthening of the scientific communities. This, on the other hand, brought about an increasing autonomy of these communities.

Another question to be analysed is, to which extent the public that represented a much lower level of knowledge, was able to understand science. In the 17th century the levels were approaching: society could learn about the achievements of mathematics, astronomy, optics, and statics, even if they were not able to understand or interpret them. However, this knowledge made it possible that faith in science grew stronger in people, and they recognized its importance.

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An equally important issue was that of communication, i.e. the appearance of scientific journals. This started about mid 17th century, and gained ever increasing importance till the 19th century, when the role of universities in science became the main sources of knowledge.

ISTVÁN KRUSPÉR (1818-1905) A SCHOLAR OF GEODESY AND MECHANICAL TECHNOLOGY

Béla KRISZTIÁN

In Hungary surveying engineers were first trained at the Institutum Geometricum between 1782 and 1850. Training was suspended for a time and re-started at the Faculty of Engineering of József Technical University in 1871. Suveyors were also trained, till 1918, at the Mining Academy of Selmecbánya.

One of the founders of independent domestic surveying was ISTVÁN KRUSPÉR. He was the first professor of the Department of Geodesy of the Royal József Technical University, and was its head from 1871 to 1894. He developed a number of new methods of measurements as well as new instruments. He had the first observatory built in Hungary in 1883. The subjects taught by him were: mechanics, arithmetics, higher mathematics, descriptive geometry, geodesy and mechanical technology.

THE ENGINEER'S ROLE IN OUR EPOCH IN THE CONTEXT OF POST-ACADEMIC SCIENCE

László MOLNÁR

In our epoch engineers play an important role in society and economy as in the society of knowledge nearly everything is imbued with science and technology. The scholars of the great number of sciences are held together by the ethos of science. Scientific habits are methodologically justified, and compulsory not only because they follow efficient procedures but also because they are considered as right and good. These are, at the same time, ethical and technical rules. The main standards of the ethos of modern science are: universalism, communism, disinterestedness, and organized scepticism. This description fits modern academic science, and was conceived in its struggle for independence of other social powers. Academic science is triggered by curiosity and directed towards acquiring true knowledge by mainly individual activities. Utilization of this knowledge is of secondary importance.

Since WW2 research and training have been becoming more and more interested in utilization. This means that research is requiring more and more resources, and is becoming more and more collective. This brings about that it must be explicitly oriented to practical problems. Open-handed support by the state brings politics into science in the form of policies of science and technology. Consequently, social utility will be a decisive aspect in the assessment of science. The practical character of post-academic science brings about the appearance of the social responsibility of science. As a result of the integration of technology into science and vice versa, post-academic science is becoming part of technoscience. In view of this trend it is acceptable that the ethics of science and technology as well as the ethics of the engineer are becoming more and more the ethics of the responsibility of science and technology, to society.

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APPEARANCE OF A NEW HOUSEHOLD MACHINE IN APPLIED GRAPHICS

Anikó GULYÁS-GÖMÖRI

A review is given on the history of refrigeration. Then a refrigerator operated by communal gas is described, and its graphical advertisement is treated in detail.

THREE GENERATIONS OF THE ZSIGMONDY DYNASTY

Béla CSATH

The three generations of the ZSIGMONDY family dealt with in the paper were all engaged in well-drilling. The first of them, mining engineer VILMOS ZSIGMONDY was the initiator of sinking artesian wells. His nephew BÉLA, originally a mechanical engineer, became later a well-drilling engineer and became a countrywide known expert by easing the drinking-water problems of the towns in the Great Hungarian Plain. The third member of the family, the bridge-building engineer DEZSŐ ZSIGMONDY, also was an outstanding expert in the field of artesian wells.

THOUGHTS ABOUT THE REFLECTION OF THE ACHIEVEMENTS OF TECHNOLOGY AND MEDICINE IN COMMON KNOWLEDGE

Tibor LAÁR

People, in general, do not consider as uneducated those that have no idea of the creative minds that have brought their professions or specialities to the standard we all can enjoy today. In order to remedy to this situation, the Federation of Technical and Scientific Societies MTESZ has brought into being the Committee of History of Science and Technology (TTB) as well as specialized historical committees in the frame of its professional societies. The activities of these committees have, however, not reached the wide public. General interest in the matter could be roused by suggesting an agreeable and useful means to the public to widen their knowledge in the field in their leisure time. The Council of Europe had announced, before 1990, the organization of so-called international thematic routes passing through borders. MTESZ TTB has, so far, included two of these routes, the Baroque Route and the Iron Route, in its yearly programme. An account is given on the results of these programmes achieved so far as well as on further related plans.

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THE PHYSICIANS' SOCIETY AND POLITICS

Károly KAPRONCZAY

After some historical examples of physicians' participation in politics, the author gives a comprehensive picture of the role Hungarian medical doctors played in the politics of consecutive epochs. From 1786 on the national chief physician directed medical affairs in domestic political practice as he was head of the medical administration, director of the training of physicians, and one of the most powerful counsellors of the Council of the Governor-General. The head of the medical administration was not only the administrative leader of the given field but also a professional politician. However, his policies were not allowed to be directed against the established order.

In the 1840s physicians linked to the radical Hungarian reform policy of the nobility, first of all PÁL BUGÁT formulated proposals affecting all the fields of domestic public health, training of physicians, and medical administrations. He was free to do so on the columns of the medical journal "Orvosi Tár", while the hands of the "Protomedicus" in office were tied.

The physicians that had participated in the War of Independence of 1848/49 and had been deprived of their posts or even sentenced to jail, often convened – after having served their time – in the 1850s to outline an up-to-date frame of public health and medical training. The members of the Hungarian medical school elaborated the program of the Centralist Party that was based on the trinity of education, wealth, and health.

After the Compromise, the National Health Council came into being. A second Faculty of Medicine was established in Kolozsvár (Cluj), and in 1876 the Public Health Law was enacted. Although the majority of physicians returned to their profession after having actively participated in the coming into being of the Compromise, some of them still actively participated in political life.

From the mid 1870s the movement to form a Chamber gained strength. The Medical Chamber came into being as late as 1936. Membership was compulsory for practising as physician. Besides many positive activities the Chamber excluded Jewish physicians (after the so-called anti-Jewish laws had been enacted) from joining it, thus preventing them from practising their profession. From WW1 on, some physicians actively participated in politics, on both sides of the political palette. However, they could attract only a small fraction of the physicians' society.

After 1945, the then established Free Trade Union of Physicians was a true, left-oriented political organisation. It engendered dissension, and initiated legal actions against those that represented opinions differing from theirs. Jobs and positions became dependent on political commitment, thus the Union really was not an organisation protecting the rights of the members and the whole trade.

After the fall of the so-called "socialist" regime, many physicians the voters had faith in, became members of the Democratic Parliament. Many of them did not candidate for a second cycle but returned to their profession as physician. So did most of the vets and pharmacists.

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ELECTIONS IN HUNGARY – PHYSICIANS AND PHARMACISTS IN SELF-GOVERNMENTS IN 1860-1862

Katalin KAPRONCZAY

After the defeat of the War of Independence (1848/49) central administration of public health belonged to the sphere of the Vienna Ministry of Interior of the Hapsburg Empire. Preparations were made, from 1851 on, to integrate the administration of Hungarian Public Health in the uniform legal system of the Monarchy. In 1851 a regulation came into vigour, §106 of which dealt with the tasks of local self-governments related to health. These comprised cleanliness, health, providing for the poor and inert patients. The costs were to be covered by charity or the community's budget.

Changes in health administration started in 1852. A decree of the Minister of the Interior brought into being one health office each in the five provincial municipalities existing at the time. The jobs of officials in the health administration were filled by appointment.

In 1860/61 a détente took place in the country's political life. The so-called October Diploma of 1860 restituted the Hungarian consitution, and thus municipalities regained their former role in the administration.General elections were due in 1861. Hungarian professionals, among them physicians wanted to participate in as great numbers as possible in the municipalities. The numbers of physicians elected varied from county to county to a great extent. At the end of 1860 the counties fired the appointed medical officials and countrywide re-elections were ahead. The society of physicians broke up to two factions. Some were against re-elections being held at intervals, while others thought them motivating.Re-elections were over by April 1861, and many renowned physicians became county chief physicians.

In the towns the measures taken for reviving municipal self-governments and filling the posts of officials similarly led to transports of temper. The society of physicians was not quite satisfied with the results of the municipal elections with respect to the participation of physicians and the number of those elected. In Pest, e.g. among 290 members elected there were 16 physicians, 3 surgeons, and 3 pharmacists. The officials elected started work immediately and worked out proposals for the solution of the most urgent problems of public health.

After the dissolution of the Parliament in August 1861 an important step back occurred. The counties showed a passive attitude, and the physicians elected resigned. In health administration once again officials faithful to the emperor were nominated, although there were much more Hungarians among them as before the elections.

DESCRIPTION OF DISEASES IN EURIPIDES' DRAMAS

Vera SCHILLER

Among the Greek authors of tragedies Euripides is the one in whose work the world of humans is human, and separated from the gods. Part of this innovation is that in his drama he depicts much more helpless people than had done the other two great authors of dramas (Sophocles and Ayschylos). In Euripides' drama "Orestes", the hero of the drama shows symptoms of epilepsy, however, he attributes them to the Erinnyses (deities of vengeance).

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WATER SUPPLY OF THE TOWN OF VESZPRÉM IN THE MIRROR OF TWO CENTURIES

Klára Gy. LOVASSY

The author gives an account on the water supply of the university town Veszprém from the 1700s on as well as a picture of the old well's situation today.

CONTRIBUTIONS TO THE CULTURAL HISTORY OF WOOD
Trees, timber and wood-working in some arts (II)

Sándor László TÓTH

As continuation of an earlier paper the author gives an account on how wood-working is reflected in music, literature and some fine arts. The role of wood in our life and in mythologies. Songs and poems on timber and on wood-working. Traditional artisans' professions dealing with timber/wood: carpenters, joiners, wheelwrights (making wooden wheels), wood turners, cartwrights, musical instrument makers and their characteristics. Misconceptions and erroneous notions about the woodworking industry and its products. Today's special fields of the woodworking industry: the sawmilling industry, thin board manufacture, furniture manufacture, construction joinery and their products. Timber architecture and wood carving.

CREATING NEW CUTTING TECHNOLOGIES IN THE SAWMILLING INDUSTRY

Kinga GERENCSÉR

A new and environment-friendly wood and timber cutting method aimed at diminishing the amount of sawdust and the losses caused by it is described. The essence of the procedure is wood cutting with a water jet. Details of the technology are given.